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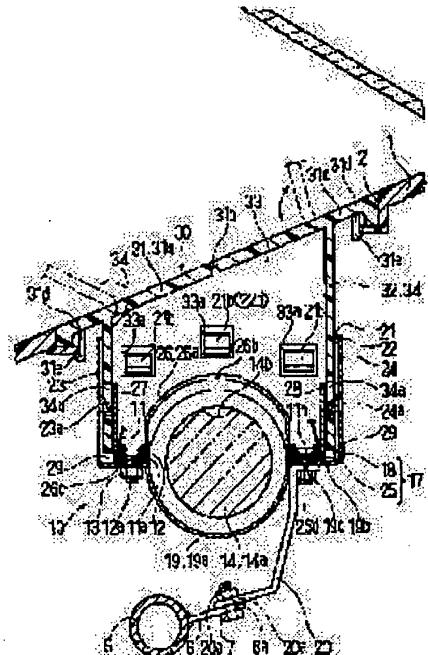
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(54) AIR BAG DEVICE FOR PASSENGER'S SEAT

(57)Abstract:

PROBLEM TO BE SOLVED: To reduce production costs and manhours required by the manufacture and assembly of respective parts, and finely combine a door with an instrument panel opening part, even if the door to be located at the instrument panel opening part, is connected with a case.

SOLUTION: A door 30 is provided with a closure main body 31, a side wall part 32 in a square cylindrical shape, and with locking legs 31d locking the door at the inner circumferential periphery of an instrument panel opening part 2. A case 17 to be fixed to the side of a body is provided with a groove part 29 for fitting the side walls 34 and 34 of a door side wall part 32, side Walls 21 and 22 located at the outer side faces of the side walls 34 and 34 of the door side wall part 32, and with fall-out preventing pawl pieces 23a and 24a which lock the circumferential periphery of each locking hole 34a of the door side wall part 32, and prevent the door side wall part 32 from falling out. The dimension of mutual assemblies for the groove part 29, the side walls 21 and 22 and the door side wall part 32 is so established that the locking condition of each pawl piece 23a and 24a around each locking hole 32 is secured in such a way that gaps are created in three directions in the three dimension.



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CLAIMS

[Claim(s)]

[Claim 1] Passenger-side air bag equipment constituted by having the door which covers the case by which connection fixation is carried out, and the air bag folded up within the aforementioned case possible [an aperture] to the inflator which supplies the gas for expansion to the air bag and this air bag which are characterized by providing the following, and the accouplement which holds the aforementioned air bag and the aforementioned inflator and is prolonged from a body frame, and plugs up opening of an instrument panel. The aforementioned door is a main part of a wrap lid about opening of the aforementioned instrument panel possible [an aperture]. the lower part from the periphery edge of this main part of a lid — being prolonged — a stop — the side-attachment-wall section of the shape of an abbreviation square cartridge with the hole

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] this invention relates to the passenger-side air bag equipment arranged at the part of the instrument panel in the passenger seat front of vehicles.

[0002]

[Description of the Prior Art] Conventionally, the air bag of a saccate and the air bag were equipped with the inflator which supplies the gas for expansion, and the case where a wrap door and an air bag inflator door are held for an air bag, with the air bag equipment arranged ahead [passenger seat] (references, such as JP,7-117606,A).

[0003] The door covered the air bag folded up within the case possible [an aperture], it was constituted so that opening of an instrument panel (it abbreviates to an instrument panel hereafter) might be plugged up, and connection maintenance was carried out to the case at the case using the bolt nut or the rivet. Moreover, the case was constituted so that connection fixation might be carried out at the accouplement (for example, phosphorus force) directly prolonged from a body frame.

[0004] In addition, the reason for connecting a door with a case firmly using a bolt etc. is for making it open smoothly at the time of expansion of an air bag, without making a door transform.

[0005]

[Problem(s) to be Solved by the Invention] However, since there is nothing, it is easy to produce the case where the door held at the case doubles finely and is not attached to opening of an instrument panel, with the composition with which a case is connected an instrument panel and directly at the case by which connection fixation is carried out at a body frame side as it is conventional passenger-side air bag equipment of composition of carrying out connection maintenance of the door.

[0006] Therefore, time and effort became manufacture including tolerance management of each part article of an instrument panel or air bag equipment with this thing very much, the manufacture man day and the manufacturing cost were raised and time and effort had also become the work with a group of air bag equipment with this thing further so that it could perform doubling with a door and instrument panel opening finely.

[0007] this invention solves an above-mentioned technical problem, and even if the door arranged at instrument panel opening is connected with the case, it reduces a man day and cost with manufacture and the group of each part article, and it aims at offering the passenger-side air bag equipment which can perform doubling with a door and instrument panel opening finely.

[0008]

[Means for Solving the Problem] The inflator with which the passenger-side air bag equipment concerning this invention supplies the gas for expansion to an air bag and this air bag, The case by which connection fixation is carried out at the accouplement which holds the aforementioned air bag and the aforementioned inflator and is prolonged from a body frame, And the door which covers the air bag folded up within the aforementioned case possible [an aperture], and plugs up opening of an instrument panel, It is passenger-side air bag equipment ******(ed). the

aforementioned door opening of the aforementioned instrument panel possible [an aperture] The main part of a wrap lid, the lower part from the periphery edge of this main part of a lid — being prolonged — a stop, while having the side-attachment-wall section of the shape of an abbreviation square cartridge with the hole While making the stop foot which the inner circumference edge of the aforementioned instrument-panel opening is made to stop arrange in the periphery edge of the aforementioned main part of a lid and equipping the aforementioned case with the slot for inserting in the part which counters in the direction of a short hand in the aforementioned door side-attachment-wall section A periphery is stopped. the side attachment wall arranged at the lateral surface or medial surface of a part which counters by the longitudinal direction in the aforementioned door side-attachment-wall section is had and constituted — having — further — from the inner skin of the aforementioned slot — being prolonged — the stop of the aforementioned door side-attachment-wall section — a hole — The piece of a presser foot stitch tongue which prevents the omission of the aforementioned door side-attachment-wall section from the aforementioned slot is made to arrange. The aforementioned slot and the aforementioned side attachment wall, the mutual size with a group of the aforementioned door side-attachment-wall section and ** — the aforementioned stop of the aforementioned piece of a presser foot stitch tongue — a hole — the stop state to a periphery is secured, and it has a margin and is characterized by being set up so that a crevice may be produced in the three 3-dimensional directions

[0009]

[Effect of the Invention] even if it is considering as the structure where the door side-attachment-wall section is connected with a case through the piece of a presser foot stitch tongue, with the passenger-side air bag equipment concerning this invention — the mutual size with a group of a slot and a side attachment wall, and the door side-attachment-wall section and ** — the stop of the piece of a presser foot stitch tongue — a hole — the stop state to a periphery is secured, and it has a margin and is set up so that a crevice may be produced in the three 3-dimensional directions

[0010] Therefore, even if connection fixation of the case is carried out through an accouplement at a body frame and the door is stopped in the instrument panel opening periphery using the stop foot, the connection error of a case and a door is absorbed in the crevice between the mutual sizes with a group of a slot, and the side attachment wall and the door side-attachment-wall section. And since a door is stopped in an instrument panel opening periphery using the stop foot of the main part periphery edge of a lid, doubling with instrument panel opening in the main part of a lid of a door will be secured good. And since those errors are absorbable in the crevice between the mutual sizes with a group of a slot and a side attachment wall, and the door side-attachment-wall section and ** again even if it performs strictly neither the size of each part article, nor management of work with a group, it becomes unnecessary to carry out manufacture and with a group strictly, and a man day and cost with manufacture and the group of each part article can be reduced. [of each part article]

[0011] Especially, since it is the structure which inserts in a slot the part which carries out opening in the direction of a short hand of the door side-attachment-wall section even if the margin is formed as a 3-dimensional crevice is generated in a mutual size with a group, positioning is easy for a case and the door side-attachment-wall section, and can connect a case and a door with them easily.

[0012] furthermore, not the thing using a bolt, a rivet, etc. but a stop — a hole — the man day and cost at the time of connection can also be further reduced from the ability of a case and a door to be connected with a periphery only by stopping the piece of a presser foot stitch tongue

[0013] Therefore, even if the door arranged at instrument panel opening is connected with the case, the passenger-side air bag equipment concerning this invention can reduce remarkably a man day and cost with manufacture and the group of each part article, and can perform doubling with a door and instrument panel opening finely.

[0014] Moreover, although the part which counters in the direction of a short hand of the door side-attachment-wall section will receive a pressure strongly compared with the part which

counters by the longitudinal direction of the door side-attachment-wall section so that it may swell to the method of outside at the time of expansion of an air bag the stop of the part which counters in the direction of a short hand — a hole and its stop — the piece of a presser foot stitch tongue stopped by the hole — or the periphery will be covered by the part of the case which constitutes a slot so that it may be contained in a slot, and the part of the case distributes in the whole field in response to the strong pressure at the time of air bag expansion — it can make — the stop of the piece of a presser foot stitch tongue — a hole — secession from a periphery can be prevented

[0015]

[Embodiments of the Invention] Hereafter, 1 operation form of this invention is explained based on a drawing.

[0016] It has an air bag 11, an inflator 14, a case 17, and a door 30, and the passenger-side air bag equipment 10 of an operation form is constituted, as shown in drawing 1 -3.

[0017] Mounting hole 11b of the plurality (an operation form six pieces) for attaching an air bag 11 in a case 17 is formed in the periphery of opening 11a as a saccate to which the air bag 11 equipped the lower part with opening 11a which carried out opening at the abbreviation rectangle configuration. In addition, an air bag 11 will be attached in a case 17 using the retainer 12 made from abbreviation square annular sheet metal which made bolt 12a which each mounting hole 11b is made to penetrate project from the undersurface.

[0018] Male screw section 14 c.14d for opening of the gas delivery 14b which makes the predetermined position of main part 14a breathe out gas as a cylinder type being carried out, and

[0019] The case 17 consists of the main parts 18 and diffusers 25 which were made into the product made from sheet metal, respectively.

[0020] Shell composition is carried out with a bottom wall 19 and four side attachment walls 21-22-23-24 of the shape of a square cartridge which starts upwards from the periphery edge of a bottom wall 19, a main part 18 is equipped with flat-surface section 19b and 19b to which a bottom wall 19 extends horizontally from half-rate cylinder-like curved-surface section 19a and both the edges of the curved-surface section 19, and it is constituted. Mounting hole 19c in which each bolt 12a of a retainer 12 is made to insert is formed in each flat-surface section 19b.

[0021] Moreover, two brackets 20 for carrying out connection fixation of the case 17 have fixed to the accouplement 5 connected with the body frame which is not illustrated at one flat-surface section 19b. nut 20b fixes to each bracket 20 — having — ****ing — a hole — 20a is formed and pass mounting hole 6a of the bracket 6 prolonged from an accouplement 5 — the bolt 7 inserted — a screw thread — a hole — if it is made to screw in 20a, connection fixation can be carried out at the body frame side which does not illustrate a case 17 through an accouplement 5

[0022] On the side attachment wall 21-22 which counters by the longitudinal direction of a main part 18 the insertion which attaches an inflator 14 — a hole — 21a and 22a being formed and on these side attachment walls 21-22 and the side attachment wall 23-24 which counters in the direction of a short hand of a main part 18 the stop prepared in the side-attachment-wall section 32 of the door 30 mentioned later — a hole — two or more presser foot stitch tongues which can stop to the periphery of 32a — piece 21b, 22b, 23a, and 24a are formed (with an operation form, piece of presser foot stitch tongue 21b and 22b are five pieces at a time in piece of every three-piece presser foot stitch tongue 23a, and 24a) each presser foot stitch tongue — in order to secure intensity, piece 21b, 22b, 23a, and 24a carry out spinning of not the configuration only started to the tabular but each side attachment wall 21-22-23-24, is formed, and is formed in the hood configuration to which opening of the lower part was carried out

[0023] A diffuser 25 is equipped with the side attachment wall 27-28 which starts the upper part of main part of inflator 14a upwards from both the edges of the wrap abbreviation half rate cylinder-like bottom wall 26 and a bottom wall 26, and is constituted. Shell composition of the bottom wall 26 is carried out with abbreviation half-segmented cylinder-like curved-surface section 26a, and flat-surface section 26c and 26c which are horizontally prolonged from both the

edges of curved-surface section 26a, and curved-surface section 26a is made to diffuse the gas from an inflator 14, and predetermined opening 26b is formed in it so that it may lead in an air bag 11 smoothly. Mounting hole 26b in which each bolt 12a of a retainer 12 is made to insert is formed in each flat-surface section 26c.

[0024] Each side attachment wall 27-28 will constitute the slot 29 in which the side attachment wall 34-34 which counters by the inside of the side attachment wall 23-24 of a main part 18, and counters in the direction of a short hand in the door side-attachment-wall section 32 later mentioned with the side attachment wall 23-24 of the main part 18 as stated above or flat-surface section 19b is inserted, and will constitute the wall section of a slot 29 especially. Incidentally, a side attachment wall 23-24 will constitute the outer wall section of a slot 29, and flat-surface section 19b will constitute the bottom wall section of a slot 29.

[0025] A door 30 is formed from synthetic resin, such as thermoplastic elastomer, such as a styrene system and an olefin system, is equipped with the side-attachment-wall section 32 of the shape of a square cartridge prolonged to a lower part in the opening 2 of an instrument panel 1 from the periphery edge of the main part 31 of a wrap lid, and the main part 31 of a lid possible [an aperture], and is constituted.

[0026] The main part 31 of a lid is seen from the upper part to aperture section 31a as aperture section 31a which opens the part surrounded by the side-attachment-wall section 32 at the time of expansion of an air bag 11, and fracture schedule section 31b which prepared and formed the slot used as H typeface's in the rear-face side is arranged. And 31d of stop feet of plurality (an operation form eight pieces) which project below is formed in periphery marginal 31c of the outside of the side-attachment-wall section 32 in the main part 31 of a lid. So that 31d of each stop foot may make the stop possible on the inner circumference edge of the instrument panel opening 2 and a door 30 may not produce a position gap from the periphery of the instrument panel opening 2 further at the time of a stop. It is formed so that the crevice between the upper surface of hook 31e of 31d of each stop foot and the undersurface of main part periphery of lid marginal 31c may correspond to the thickness of the periphery part of the stopping opening 2 and the outside side of 31d of each stop foot may approach the inner skin of opening 2.

[0027] The square cartridge-like door side-attachment-wall section 32 is equipped with the side attachment wall 33-33 which counters by the longitudinal direction, and the side attachment wall 34-34 which counters in the direction of a short hand, and is constituted, at the time of connection in the case 17 of a door 30, a side attachment wall 33-33 will be arranged inside the side attachment wall 21-22 of the case main part 18, and a side attachment wall 34-34 will be inserted in the slot 29-29 of a case 17. each side attachment wall 33-33-34-34 — each presser foot stitch tongue — the stop which has a periphery stopped by piece 21b, 22b, 23a, and 24a — a hole — 33a and 34a are formed

[0028] And the case 17 and door 30 of an operation form As shown in drawing 45, the mutual size with a group of a slot 29 and a side attachment wall 21-22, and the door side-attachment-wall section 32 and ** The stop state to 33a and 34a periphery is secured. each presser foot stitch tongue — the stop of piece 21b, 22b, 23a, and 24a — a hole — It has a margin and is set up so that the crevice H3 (H3=H31+H32) between crevice H2 (H2=H21+H22) and the longitudinal direction of the crevice H1 (H1=H11+H12) and the cross direction of the 3-dimensional vertical direction may be produced.

[0029] since [namely,] the crevice H1 between the vertical directions is produced — each presser foot stitch tongue — from the dimension a of the vertical direction of piece 21b, 22b, 23a, and 24a the stop of the door side-attachment-wall section 32 — a hole — the size B of the vertical direction of 33a and 34a — large — and a stop — the size D from piece of presser foot stitch tongue 23a and 24a of a case 17 to bottom wall section 19b is greatly set up from the size C from hole 34a to the soffit of a side attachment wall 34

[0030] It does not regulate positively by setup of dimension a and B with 33a and 34a. and an operation form can prescribe the size of a crevice H1 strictly — as — a presser foot stitch tongue — piece 21b, 22b, 23a and 24a, and a stop — a hole — (B-A) The crevice H1 (H1=H11+H12) is set to 6mm, using [as] $\geq (D-C)$, are constituted so that it can regulate with the size with a group of a slot 29 and a side attachment wall 34, and] a size D as 21mm using a

size C as 15mm. In addition, this crevice H1 has 2 desirablemm or more. In less than 2mm, it is because it is hard coming to absorb an error with a group etc.

[0031] Since the crevice H2 between cross directions is produced, moreover, from the width-of-face size E of piece of presser foot stitch tongue 21b and 22b of the side attachment wall 21-22 of a case 17 The width-of-face size F of 33a is large. a stop of the side attachment wall 33 stopped by piece of presser foot stitch tongue 21b and 22b — a hole — Furthermore, the size I between the inside sides in the side attachment wall 34-34 of the cross direction of the door side-attachment-wall section 32 is larger than the size G between an outside and the side of both the walls section 27-28 of a diffuser 25. And the size K between the inside sides of both the outer wall section 23-24 of a main part 18 is greatly set up from the size J between an outside and the side in the side attachment wall 34-34 of the cross direction of the door side-attachment-wall section 32.

[0032] and an operation form can prescribe the size of a crevice H2 strictly — as — piece of presser foot stitch tongue 21b and 22b, and a stop — a hole — since it regulates positively by setup of size E-F of 33a, there is nothing, and as $\geq (F-E) \{[(K-G)-(J-I)]/2\}$, it is constituted so that it can regulate with the size with a group of a slot 29 and a side attachment wall 34 of course, piece of presser foot stitch tongue 23a and 24a — a stop — it is necessary to make the opening width-of-face size L of a slot 29 ($L = (K-G)/2$) smaller than the sum of the thickness t_2 ($t_2 = (J-I)/2$) of a side attachment wall 34, and the amount h_2 of projection of piece of presser foot stitch tongue 23a, and 24a so that it may not separate from hole 32a

[0033] incidentally — an operation form — a size K — 103mm and a size G — the crevice H2 ($H_2 = H_{21} + H_{22} = L - t_2$) is set to 2mm, using [92mm and the opening width-of-face size L / 5.5mm and a size J] 3.5mm and the amount h_2 of projection as 4.5mm for thickness t_2 using 101mm and a size I as 94mm In addition, this crevice H2 has 2-4 desirablemm. less than 2mm — an error with a group etc. — absorbing — being hard — if it exceeds 4mm — piece of presser foot stitch tongue 23a, and 24a — a stop — a hole — it is because it is no longer enough stopped by 34a

[0034] Since the crevice H3 between longitudinal directions is produced, furthermore, from the width-of-face size M of piece of presser foot stitch tongue 23a and 24a of the outer wall section 23-24 of a case 17 a stop of the side attachment wall 34 stopped by piece of presser foot stitch tongue 23a and 24a — a hole — the width-of-face size N of 34a is large, and the size P between the inside sides of the side attachment wall 21-22 of a main part 18 is greatly set up from the size O between an outside and the side in the side attachment wall 33-33 of a longitudinal direction

[0035] and an operation form can prescribe a crevice H3 strictly — as — piece of presser foot stitch tongue 23a and 24a, and a stop — a hole — since it regulates positively by setup of size M-N of 34a, there is nothing, and as $\geq (N-M) (P-O)$, it is constituted so that it can regulate with the size with a group of a side attachment wall 21-22 and a side attachment wall 33-33 of course, piece of presser foot stitch tongue 21b and 22b — a stop — it is necessary to make a crevice H3 smaller than the amount h_1 of projection of piece of presser foot stitch tongue 21b, and 22b so that it may not separate from hole 33a

[0036] incidentally, with the operation form, the crevice H3 ($H_3 = H_{31} + H_{32} = P - O$) is set to 2mm, using the amount h_1 of projection as 4.5mm for a size P using 203mm and a size O as 201mm. In addition, this crevice H3 has 2-4 desirablemm. less than 2mm — an error with a group etc. — absorbing — being hard — if it exceeds 4mm — piece of presser foot stitch tongue 21b, and 22b — a stop — a hole — it is because it is no longer enough stopped by 33a

[0037] in addition — an operation form — each presser foot stitch tongue — piece 21b, 22b, 23a and 24a, and each stop — a hole, while making an arrangement position with 33a and 34a correspond even if a case 17 and a door 30 shift and are attached — each presser foot stitch tongue — each stop at the time of the stop of piece 21b, 22b, 23a, and 24a — a hole — the crevice between the vertical direction, a cross direction, and a longitudinal direction with the inner skin of 33a and 34a It is constituted so that it may be in agreement with each crevice H11, H12, H21, H22, H32, and H33. namely, each presser foot stitch tongue — piece 21b, 22b, 23a and 24a, and each stop — a hole — an arrangement position with 33a and 34a corresponds, and it is

set up with = (B-A) (D-C), = (F-E) $[(K-G)-(J-I)]/2$, and = (N-M) (P-O) Thus, when constituted, since the margin of each portion at the time of connection at a case 17 and a door 30 is in agreement by the vertical direction, the cross direction, and the longitudinal direction, the force of acting at the time of expansion of an air bag 11 etc. can be equally distributed in each portion, or the margin size at the time of connection will be viewed, and it can grasp easily.

[0038] Next, explanation of attachment by the body of the air bag equipment 10 of an operation form assembles air bag equipment 10 first. The assembly of air bag equipment 10 puts in a retainer 12 in an air bag 11 first, making bolt 12a insert in each mounting hole 11b, and folds up an air bag 11.

[0039] then, the case main part 18 — receiving — the insertion from the upper part — while arranging an inflator 14 so that ends may be made to project from hole 21a and 22a, arrange a diffuser 25, 26d of mounting holes and 19c of a diffuser 25 and the case main part 18 are made to penetrate each bolt 12a of a retainer 12, and a nut 13 is screwed in each bolt 12a

[0040] Subsequently, a nut 15-16 is made to screw in male screw section 14 c.14d, and an inflator 14 is fixed to a case 17.

[0041] and — while arranging a side attachment wall 33-33 inside the side attachment wall 21-22 of the case main part 18 — a side attachment wall 34-34 — the slot 29-29 of a case 17 — inserting in — each stop of a side attachment wall 33-34 — a hole — the periphery of 33a and 34a — a presser foot stitch tongue — if piece 21b, 22b, 23a, and 24a are stopped, the assembly of air bag equipment 10 will be completed

[0042] At this time, in a case 17 and the door side-attachment-wall section 32 Since it is the structure which inserts in a slot 29-29 the side attachment wall 34-34 which counters in the direction of a short hand of the door side-attachment-wall section 32 even if the margin is formed, as arisen in the 3-dimensional crevice H1, H2, and H3 in a mutual size with a group, It is easy, and positioning can connect a case 17 and a door 30 easily, and can assemble air bag equipment 10 easily.

[0043] moreover, the thing for which connection at a case 17 and a door 30 uses a bolt, a rivet, etc. — it is not — a stop — a hole — 33a and 34a periphery — a presser foot stitch tongue — piece 21b, 22b, 23a, and 24a are stopped — being sufficient — connection work becomes easy from things further

[0044] Then, air bag equipment 10 is put in to a lower part, and the periphery of opening 2 is made to stop 31d of each stop foot of a door 30 from the opening 2 of the instrument panel 1 attached in the body beforehand.

[0045] subsequently, the screw thread of each bracket 20 prolonged from a case 17 — a hole — pass mounting hole 6a of a bracket 6 in 20a — if a bolt 7 is made to screw, the part of an instrument panel 1 can be equipped with air bag equipment 10

[0046] In addition, although wearing into the body to the above-mentioned air bag 10 explained beforehand the case where the instrument panel 1 was attached in the body For example, opening 2 periphery is made to stop 31d of stop feet by other wearing methods, before the installation to the body of an instrument panel 1. Air bag equipment 10 is attached to the instrument panel 1, an air bag 10 is connected with an accouplement 5 using a bracket 20, and, subsequently to the body, it may be made to carry out connection fixation of the instrument panel 1.

[0047] and with the air bag equipment 10 of an operation gestalt a presser foot stitch tongue, even if it is considering as the structure where the door side-attachment-wall section 32 is connected with a case 17 through piece 21b, 22b, 23a, and 24a The stop state to 33a and 34a periphery is secured, the mutual size with a group of a slot 29 and a side attachment wall 21-22, and the door side-attachment-wall section 32 and ** — a presser foot stitch tongue — the stop of piece 21b, 22b, 23a, and 24a — a hole — It margin***** and is set up so that a crevice H1, H2, and H3 may be produced in the three 3-dimensional directions (the vertical direction, a cross direction, and longitudinal direction).

[0048] Therefore, even if connection fixation of the case 17 is carried out through an accouplement 5 at a body frame and the door 30 is stopped in the periphery of the instrument panel opening 2 using 31d of stop feet, the connection error of a case 17 and a door 30 will be

absorbed by the crevice H1 between the mutual sizes with a group of a slot 29, and the side attachment wall 21-22 and the door side-attachment-wall section 32, H2, and H3. And since a door 30 is stopped in the periphery of the instrument panel opening 2 using 31d of stop feet of main part periphery of lid marginal 31c, doubling with the instrument panel opening 2 in the main part 31 of a lid of a door 30 will be secured good. And since those errors are absorbable again by the crevice H1 between the mutual sizes with a group of a slot 29, and the a side attachment wall 21-22 and the door side-attachment-wall section 32, H2, and H3 even if it performs strictly neither the size of an each part article, nor management of work with a group, it becomes unnecessary to carry out manufacture and with a group strictly, and a man day and cost with manufacture and the group of an each part article can be reduced remarkably. [of an each part [0049] And if predetermined gas is breathed out from gas delivery 14b of an inflator 14 the back with [to the body] a group and an air bag 11 expands, fracture schedule section 31b of aperture section 31a of a door 30 will fracture, and an air bag 11 will expand greatly from aperture section 31a. in addition — although a door 30 is pushed on an air bag 11 and it is strongly pushed up upwards at the time of fracture of fracture schedule section 31b — each presser foot stitch tongue — piece 21b, 22b, 23a, and 24a — a stop — a hole — in order to stop the margo-inferior side of 33a and 34a and to regulate movement to the upper part of the door side-attachment-wall section 32, fracture schedule section 31b will fracture smoothly [0050] At the time of expansion of an air bag 11, moreover, with the air bag equipment 10 of an operation gestalt Although the side attachment wall 34-34 which counters in the direction of a short hand of the door side-attachment-wall section 32 will receive a pressure strongly compared with the side attachment wall 33-33 which counters by the longitudinal direction of the door side-attachment-wall section 32 so that it may swell to the method of outside at the time of expansion of an air bag 11 a stop of the side attachment wall 34-34 which counters in the direction of a short hand — a hole — 34a and its stop — a hole — piece of presser foot stitch tongue 23a and 24a stopped by 34a — Or the periphery will be covered in the wall section 27-28 which constitutes a slot 28 so that it may be contained in a slot 29. among those, a wall 27-28 distributes in the whole field in response to the strong pressure at the time of air bag 11 expansion — it can make — the stop of piece of presser foot stitch tongue 23a, and 24a — a hole — secession from 34a periphery can be prevented [0051] in addition, the side attachment wall 33-33 of the door side-attachment-wall section 32 which prepares piece of presser foot stitch tongue 21b, and 22b in the side attachment wall 21-22 which counters by the longitudinal direction of a case 17, and is equivalent to it with an operation gestalt — a stop — a hole, although 33a was prepared piece of presser foot stitch tongue since pressure on which this side-attachment-wall 33-33 side acts at time of expansion of air bag 11 is small compared with side-attachment-wall 34-34 side 21b and 22b, and a stop — a hole — it is not necessary to prepare 33a [0052] Moreover, although the thing of the shape of a square cartridge with which the side-attachment-wall section 32 of a door 30 was connected over the perimeter was shown, the side-attachment-wall section 32 may consist of operation gestalten as a configuration which each side attachment wall 33-34 was made to divide. [0053] furthermore — although the operation gestalt showed what formed piece of presser foot stitch tongue 23a and 24a prepared in a slot 29 from the outer wall section 23-24 — a stop — a hole — you may form the piece of a presser foot stitch tongue which 34a is made to stop so that it may be made to project from the wall section 27-28 [0054] With an operation gestalt, although the case where the side attachment wall 21-22 of a case 17 was arranged to the lateral surface of the side attachment wall 33-33 which counters by the longitudinal direction of the door side-attachment-wall section 32 was shown, the side attachment wall 21-22 from a main part 18 may be lost, it may carry out forming from a diffuser 25 etc., and the side attachment wall of a case 17 may be arranged to the medial-surface side of a side attachment wall 33 further again. And if the size between the medial surfaces of a side attachment wall 33-33 and the size between the side-attachment-wall lateral surface by the side of the case 17 prepared in the medial surface of a side attachment wall 33 are set up also in that case so that a crevice H3 can be secured, an operation and effect of this invention can be

acquired.

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is drawing of longitudinal section showing the wearing state to the body of the air bag equipment of 1 operation gestalt of this invention.

[Drawing 2] They are decomposition perspective diagrams, such as a door of this operation gestalt, a case, and an inflator.

[Drawing 3] It is drawing of longitudinal section showing the wearing state to the body of this operation gestalt, and the thing of drawing 1 and the rectangular direction is shown.

[Drawing 4] It is drawing which put the predetermined dimension series number into drawing 1.

[Drawing 5] It is drawing which put the predetermined dimension series number into drawing 3.

[Description of Notations]

1 — Instrument panel

2 — Opening

5 — Accouplement

10 — Passenger-side air bag equipment,

11 — Air bag

14 — Inflator

17 — Case

19b — Bottom wall section,

21-22 — Side attachment wall

21b, 22b, 23a, and24a — Piece of a presser foot stitch tongue,

23-24 — Outer wall section,

27-28 — Wall section,

29 — Slot

30 — Door

31 — Main part of a lid,

31d — Stop foot,

32 — Side-attachment-wall section,

33-34 — Side attachment wall

33aand34a — Stop foot,

H1, H2, H3 — Crevice.

[Translation done.]

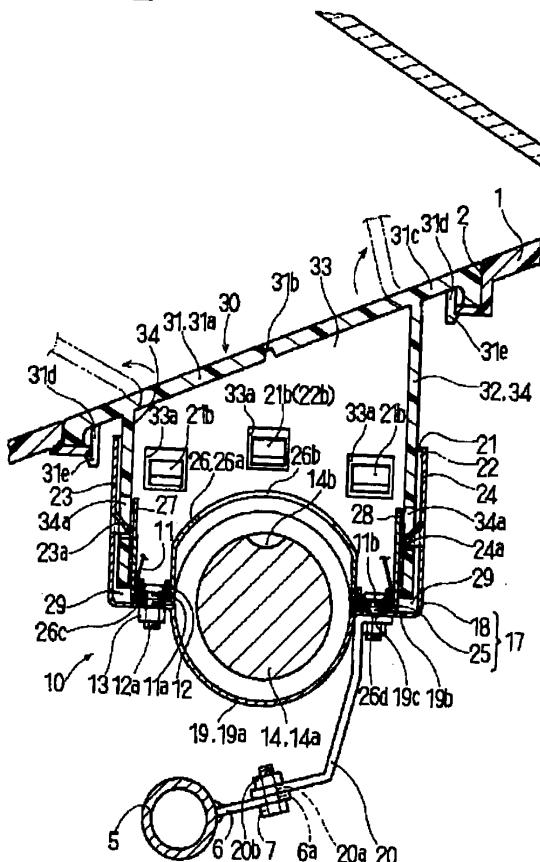
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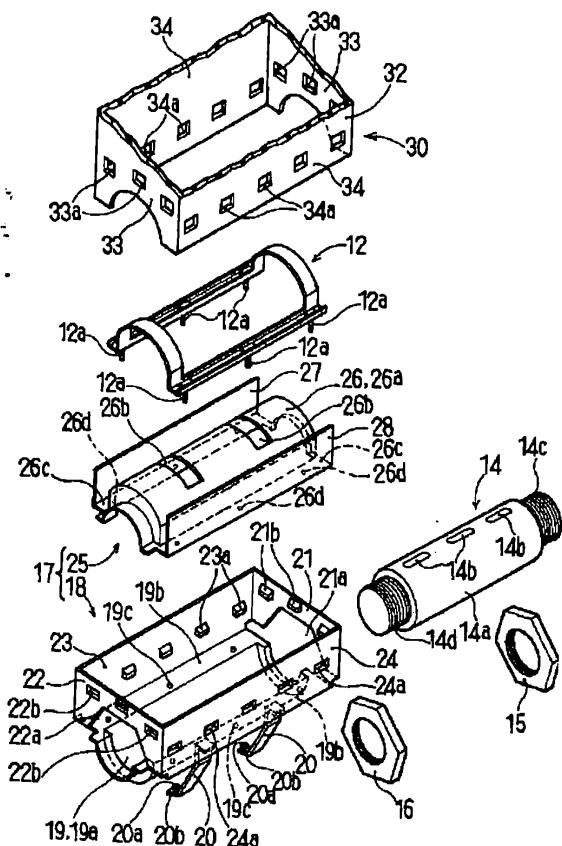
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DRAWINGS

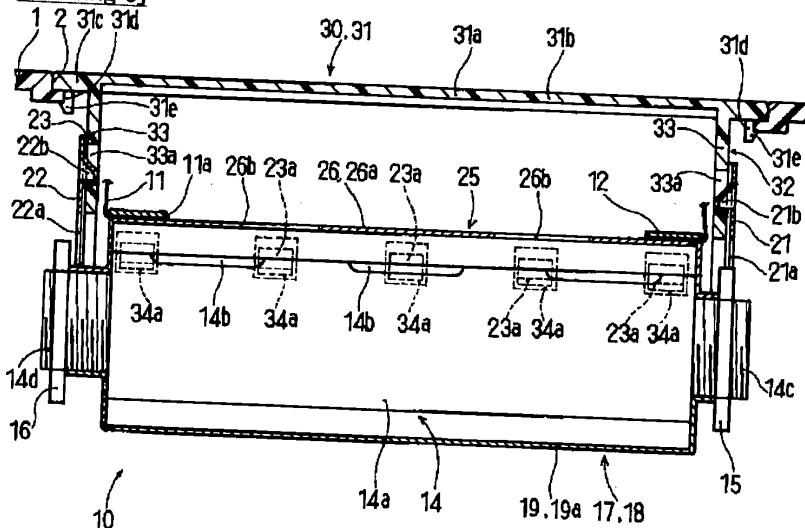
[Drawing 1]



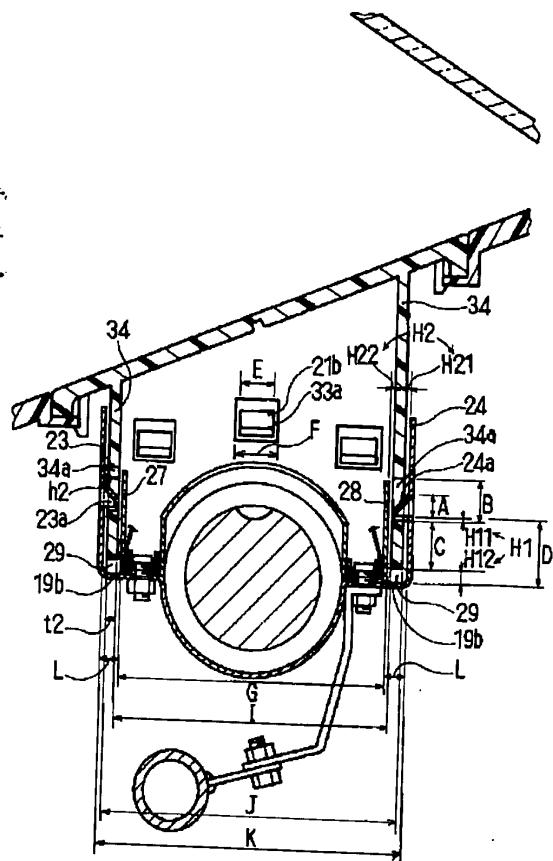
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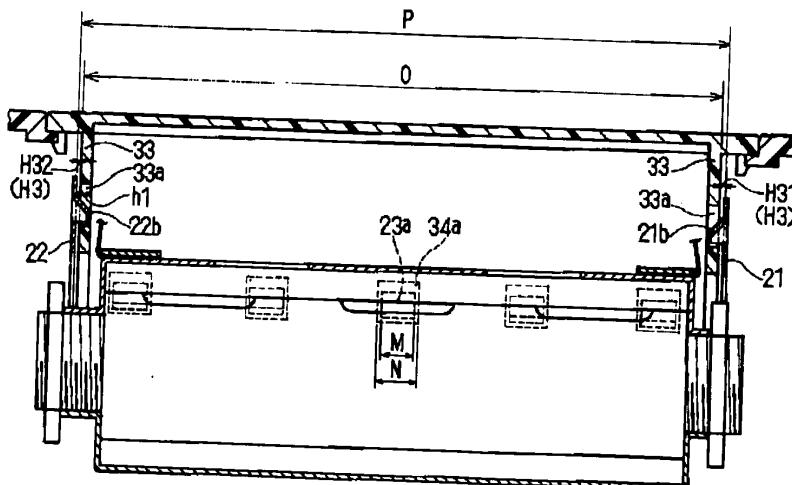
[Drawing 3]



[Drawing 4]



[Drawing 5]



[Translation done.]

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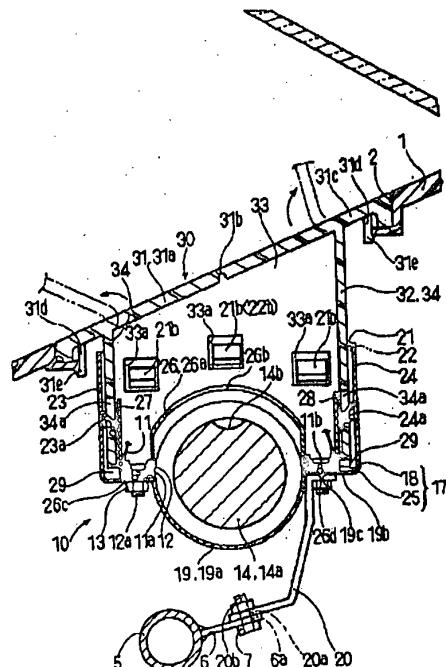
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(54)【発明の名称】 助手席用エアバッグ装置

(57)【要約】

【課題】 インパネ開口部に配置されるドアがケースと連結されても、各部品の製造や組付の工数・コストを低減させて、ドアとインパネ開口部との合せを奇麗に行なうことができる助手席用エアバッグ装置を提供すること。

【解決手段】 ドア301は、蓋本体31と、四角筒形状の側壁部32と、インパネ開口部2の内周縁に係止させる係止脚31dと、を備える。車体側に固定されるケース1.7は、ドア側壁部32の側壁34・34を嵌めるための溝部29と、ドア側壁部32の側壁34・34の外側面に位置する側壁21・22と、ドア側壁部32の係止孔34a周縁を係止して、溝部29からのドア側壁部32の抜け防止用爪片23a・24aと、を備える。溝部29及び側壁21・22と、ドア側壁部32と、の相互の組付寸法は、爪片23a・24aの係止孔34a周縁への係止状態を確保して、3次元の3方向に隙間を生ずるように、設定されている。



【特許請求の範囲】

【請求項1】 エアバッグ、該エアバッグに膨張用のガスを供給するインフレーター、前記エアバッグと前記インフレーターとを保持して車体フレームから延びる連結材に連結固定されるケース、及び、開き可能に前記ケース内で折り畳まれたエアバッグを覆い、インストルメントパネルの開口部を塞ぐドア、を備えて構成される助手席用エアバッグ装置であつて、前記ドアが、開き可能に前記インストルメントパネルの開口部を覆う蓋本体と、該蓋本体の外周縁から下方へ延びて係止孔を有した路四角筒形状の側壁部と、を備えるとともに、前記蓋本体の外周縁に、前記インストルメントパネル開口部の内周縁に係止させる係止脚を配設させ、前記ケースが、前記ドア側壁部における短手方向で対向する部位を嵌めるための溝部を備えるとともに、前記ドア側壁部における長手方向で対向する部位の外側面若しくは内側面に配置される側壁を備えて構成され、さらには前記溝部の内周面から延び、前記ドア側壁部の係止孔周縁を係止して、前記溝部からの前記ドア側壁部の抜けを防止する爪片を配設させ、前記溝部及び前記側壁と、前記ドア側壁部と、の相互の組付寸法が、前記爪片の前記係止孔周縁への係止状態を確保して、3次元の3方向に隙間を生じさせるように余裕を持って、設定されていることを特徴とする助手席用エアバッグ装置。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、車両の助手席前方におけるインストルメントパネルの部位に配置される助手席用エアバッグ装置に関する。

【0002】

【従来の技術】従来、助手席前方に配置されるエアバッグ装置では、袋状のエアバッグ、エアバッグに膨張用のガスを供給するインフレーター、エアバッグを覆うドア、及び、エアバッグ・インフレーター・ドアを保持するケースを備えていた(特開平7-117606号等参照)。

【0003】ドアは、開き可能にケース内で折り畳まれたエアバッグを覆い、インストルメントパネル(以下、インパネと略す)の開口部を塞ぐように構成され、ケースに対して、ボルト・ナットあるいはリベットを利用してケースに連結保持されていた。また、ケースは、車体フレームから直接延びる連結材(例えばリンクオース)に連結固定されるように構成されていた。

【0004】なお、ドアをケースにボルト等を利用して強固に連結する理由は、エアバッグの膨張時、ドアを変形させずに円滑に開くようにするためである。

【0005】

【発明が解決しようとする課題】しかし、車体フレーム

側に連結固定されるケースにドアを連結保持させる構成の従来の助手席用エアバッグ装置であると、ケースが、インパネと直接連結される構成で無いことから、ケースに保持されたドアが、インパネの開口部に奇麗に合せて組み付けられない場合が生じ易い。

【0006】そのため、ドアとインパネ開口部との合せを奇麗に行なえるように、インパネやエアバッグ装置の各部品の公差管理を含めた製造に、大変、手間がかかることとなって、製造工数や製造コストを上昇させ、さらに、エアバッグ装置の組付作業にも手間がかかることとなっていた。

【0007】本発明は、上述の課題を解決するものであり、インパネ開口部に配置されるドアがケースと連結されても、各部品の製造や組付の工数・コストを低減させて、ドアとインパネ開口部との合せを奇麗に行なうことができる助手席用エアバッグ装置を提供することを目的とする。

【0008】

【課題を解決するための手段】本発明に係る助手席用エアバッグ装置は、エアバッグ、該エアバッグに膨張用のガスを供給するインフレーター、前記エアバッグと前記インフレーターとを保持して車体フレームから延びる連結材に連結固定されるケース、及び、開き可能に前記ケース内で折り畳まれたエアバッグを覆い、インストルメントパネルの開口部を塞ぐドア、を備えて構成される助手席用エアバッグ装置であつて、前記ドアが、開き可能に前記インストルメントパネルの開口部を覆う蓋本体と、該蓋本体の外周縁から下方へ延びて係止孔を有した路四角筒形状の側壁部と、を備えるとともに、前記蓋本体の外周縁に、前記インストルメントパネル開口部の内周縁に係止させる係止脚を配設させ、前記ケースが、前記ドア側壁部における短手方向で対向する部位を嵌めるための溝部を備えるとともに、前記ドア側壁部における長手方向で対向する部位の外側面若しくは内側面に配置される側壁を備えて構成され、さらに、前記溝部の内周面から延び、前記ドア側壁部の係止孔周縁を係止して、前記溝部からの前記ドア側壁部の抜けを防止する爪片を配設させ、前記溝部及び前記側壁と、前記ドア側壁部と、の相互の組付寸法が、前記爪片の前記係止孔周縁への係止状態を確保して、3次元の3方向に隙間を生じさせるように余裕を持って、設定されていることを特徴とする。

【0009】

【発明の効果】本発明に係る助手席用エアバッグ装置では、爪片を介してドア側壁部がケースに連結される構造としていても、溝部及び側壁と、ドア側壁部と、の相互の組付寸法が、爪片の係止孔周縁への係止状態を確保して、3次元の3方向に隙間を生じさせるように余裕を持って、設定されている。

【0010】そのため、ケースが連結材を介して車体フ

レームに連結固定され、ドアがインパネ開口部周縁に係止脚を利用して係止されていても、ケースとドアとの連結誤差が、溝部及び側壁とドア側壁部との相互の組付寸法の隙間で吸収される。そして、ドアは、インパネ開口部周縁に蓋本体外周縁の係止脚を利用して係止されることから、ドアの蓋本体におけるインパネ開口部との合せは良好に確保されることとなる。そしてまた、各部品の寸法や組付作業の管理を厳格に行なわなくとも、それらの誤差を、溝部及び側壁と、ドア側壁部との相互の組付寸法の隙間で吸収できるため、各部品の製造や組付を厳格に行なわなくとも良くなり、各部品の製造や組付の工数・コストを低減することができる。

【0011】特に、ケースとドア側壁部とには、相互の組付寸法に3次元の隙間が生ずるよう、余裕が形成されていても、ドア側壁部の短手方向で開口する部位を溝部に挿入する構造であるため、位置決めが容易であり、簡単にケースとドアとを連結することができる。

【0012】さらに、ボルトやリベット等を利用するものでなく、係止孔周縁に爪片を係止させるだけでケースとドアとを連結することができることから、一層、連結時の工数・コストも低減できる。

【0013】したがって、本発明に係る助手席用エアバッグ装置は、インパネ開口部に配置されるドアがケースと連結されていても、各部品の製造や組付の工数・コストを著しく低減させて、ドアとインパネ開口部との合せを奇麗に行なうことができる。

【0014】また、ドア側壁部の短手方向で対向する部位は、ドア側壁部の長手方向で対向する部位に比べて、エアバッグの膨張時に外方へ膨らむように強く圧力を受けることとなるが、短手方向で対向する部位の係止孔やその係止孔に係止される爪片、あるいは、その周縁が、溝部内に収納されるように、溝部を構成するケースの部位で覆われることとなり、そのケースの部位がエアバッグ膨張時の強い圧力を面全体で受けて分散させることができ、爪片の係止孔周縁からの離脱を防止することができる。

【0015】

【発明の実施の形態】以下、本発明の一実施形態を図面に基づいて説明する。

【0016】実施形態の助手席用エアバッグ装置10は、図1~3に示すように、エアバッグ11、インフレーター14、ケース17、及び、ドア30を備えて構成されている。

【0017】エアバッグ11は、下部に略長方形形状に開口した開口部11aを備えた袋状として、開口部11aの周縁には、エアバッグ11をケース17に取り付けるための複数(実施形態では6個)の取付孔11bが形成されている。なお、エアバッグ11は、各取付孔11bに貫通させるボルト12aを下面から突出させた略四角環状の板金製のリテナ12を利用して、ケース17

に取り付けられることとなる。

【0018】インフレーター14は、シリンダタイプとして、本体14aの所定位置にガスを吐出させるガス吐出口14bが開口され、本体14aの両端には、ケース17に取り付けるための雄ねじ部14c・14dが形成されている。

【0019】ケース17は、それぞれ板金製とした本体18とディフューザー25とから構成されている。

【0020】本体18は、底壁19と、底壁19の外周縁から上方へ立ち上がる四角筒形状の4つの側壁21・22・23・24と、から構成され、底壁19は、半割り円筒状の曲面部19aと、曲面部19の両縁から水平方向へ延びる平面部19b・19bとを備えて構成されている。各平面部19bには、リテナ12の各ボルト12aを挿通させる取付孔19cが形成されている。

【0021】また、一方の平面部19bには、図示しない車体フレームと接続された連結材5にケース17を連結固定するための2本のブラケット20が固着されている。各ブラケット20には、ナット20bが固着されてねじ孔20aが形成されている。そして、連結材5から延びるブラケット6の取付孔6aを経て挿入されるボルト7を、ねじ孔20aに螺合させれば、連結材5を介してケース17を図示しない車体フレーム側に連結固定させることができる。

【0022】本体18の長手方向で対向する側壁21・22には、インフレーター14を組み付ける挿通孔21a・22aが形成され、これらの側壁21・22と本体18の短手方向で対向する側壁23・24とには、後述するドア30の側壁部32に設けられた係止孔32aの周縁に係止可能な複数の爪片21b・22b・23a・24aが形成されている(実施形態では、爪片21b・22bは3個ずつ、爪片23a・24aで5個ずつである)。各爪片21b・22b・23a・24aは、強度を確保するために、単に板状に切り起こした形状でなく、各側壁21・22・23・24を絞り加工して形成されており、下方を開口させたフード形状に形成されている。

【0023】ディフューザー25は、インフレーター本体14aの上方を覆う略半割り円筒状の底壁26と、底壁26の両縁から上方へ立ち上がる側壁27・28と、を備えて構成されている。底壁26は、略半割り円筒状の曲面部26aと、曲面部26aの両縁から水平方向に延びる平面部26c・26cと、から構成され、曲面部26aには、インフレーター14からのガスを拡散させて、円滑にエアバッグ11内に導くように、所定の開口26bが形成されている。各平面部26cには、リテナ12の各ボルト12aを挿通させる取付孔26bが形成されている。

【0024】各側壁27・28は、本体18の側壁23・24の内側で対向するものであり、既述の本体18の

側壁23・24や平面部19bとともに、後述するドア側壁部32における短手方向で対向する側壁34・34を嵌め込む溝部29を構成するものであり、特に、溝部29の内壁部を構成することとなる。ちなみに、側壁23・24は、溝部29の外壁部を構成することとなり、平面部19bは、溝部29の底壁部を構成することとなる。

【0025】ドア30は、スチレン系・オレフィン系等の熱可塑性エラストマー等の合成樹脂から形成され、開き可能にインパネ1の開口部2を覆う蓋本体31と、蓋本体31の外周縁から下方へ延びる四角筒形状の側壁部32と、を備えて構成されている。

【0026】蓋本体31は、側壁部32に囲まれた部位を、エアバッグ11の膨張時に開く開き部31aとして、開き部31aには、上方から見て、H字形のとなる溝部を裏面側に設けて形成した破断予定部31bが配設されている。そして、蓋本体31における側壁部32の外側の外周縁31cには、下方へ突出する複数(実施形態では8個)の係止脚31dが形成されている。各係止脚31dは、インパネ開口部2の内周縁に係止可能としており、さらに、係止時に、ドア30がインパネ開口部2の周縁から位置ずれを生じないように、各係止脚31dの鉤部31eの上面と蓋本体外周縁31cの下面との間の隙間が、係止する開口部2の周縁部位の厚さに対応し、また、各係止脚31dの外側面が、開口部2の内周面に接近するように形成されている。

【0027】四角筒形状のドア側壁部32は、長手方向で対向する側壁33・33と、短手方向で対向する側壁34・34と、を備えて構成され、ドア30のケース17への連結時、側壁33・33がケース本体18の側壁21・22の内側に配置され、側壁34・34が、ケース17の溝部29・29に嵌め込まれることとなる。各側壁33・33・34・34には、各爪片21b・22b・23a・24aに周縁を係止される係止孔33a・34aが形成されている。

【0028】そして、実施形態のケース17とドア30とは、溝部29及び側壁21・22と、ドア側壁部32と、の相互の組付寸法が、図4・5に示すように、各爪片21b・22b・23a・24aの係止孔33a・34a周縁への係止状態を確保して、3次元の上下方向の隙間H1(H1=H11+H12)・前後方向の隙間H2(H2=H21+H22)・左右方向の隙間H3(H3=H31+H32)を生じさせるように余裕を持つて、設定されている。

【0029】すなわち、上下方向の隙間H1を生ずるために、各爪片21b・22b・23a・24aの上下方向の寸法Aより、ドア側壁部32の係止孔33a・34aの上下方向の寸法Bが大きく、かつ、係止孔34aから側壁34の下端までの寸法Cより、ケース17の爪片23a・24aから底壁部19bまでの寸法Dが大きく

設定されている。

【0030】そして、実施形態では、隙間H1の寸法を厳密に規定できるように、爪片21b・22b・23a・24aと係止孔33a・34aとの寸法A・Bの設定で積極的に規制するのではなく、(B-A) ≥ (D-C)として、溝部29と側壁34との組付寸法で規制できるように構成され、寸法Cを15mm、寸法Dを21mmとして、隙間H1(H1=H11+H12)を、6mmとしている。なお、この隙間H1は、2mm以上が望ましい。2mm未満では、組付誤差等を吸収し難くなるからである。

【0031】また、前後方向の隙間H2を生ずるためには、ケース17の側壁21・22の爪片21b・22bの幅寸法Eより、爪片21b・22bに係止される側壁33の係止孔33aの幅寸法Fが大きく、さらに、ディフューザー25の両内壁部27・28の外側面間の寸法Gよりドア側壁部32の前後方向の側壁34・34における内側面間の寸法Iが大きく、かつ、ドア側壁部32の前後方向の側壁34・34における外側面間の寸法Jより本体18の両外壁部23・24の内側面間の寸法Kが大きく設定されている。

【0032】そして、実施形態では、隙間H2の寸法を厳密に規定できるように、爪片21b・22bと係止孔33aの寸法E・Fの設定で積極的に規制するのではなく、(F-E) ≥ [((K-G) - (J-I)) / 2]として、溝部29と側壁34との組付寸法で規制できるように構成されている。勿論、爪片23a・24aが係止孔32aから外れないように、溝部29の開口幅寸法L(L=(K-G)/2)は、側壁34の厚さt2(t2=(J-I)/2)と爪片23a・24aの突出量h2との和より小さくする必要がある。

【0033】ちなみに、実施形態では、寸法Kを103mm、寸法Gを92mm、開口幅寸法Lを5.5mm、寸法Jを101mm、寸法Iを94mm、厚さt2を3.5mm、突出量h2を4.5mmとして、隙間H2(H2=H21+H22=L-t2)を2mmとしている。なお、この隙間H2は、2~4mmが望ましい。2mm未満では、組付誤差等を吸収し難くなり、4mmを超えては、爪片23a・24aが係止孔34aに十分係止されなくなるからである。

【0034】さらに、左右方向の隙間H3を生ずるためには、ケース17の外壁部23・24の爪片23a・24aの幅寸法Mより、爪片23a・24aに係止される側壁34の係止孔34aの幅寸法Nが大きく、かつ、左右方向の側壁33・33における外側面間の寸法Oより、本体18の側壁21・22の内側面間の寸法Pが大きく設定されている。

【0035】そして、実施形態では、隙間H3を厳密に規定できるように、爪片23a・24aと係止孔34aの寸法M・Nの設定で積極的に規制するのではなく、

$(N-M) \geq (P-O)$ として、側壁21・22と側壁33・33との組付寸法で規制できるように構成されている。勿論、爪片21b・22bが係止孔33aから外れないように、隙間H3は、爪片21b・22bの突出量h1より小さくする必要がある。

【0036】ちなみに、実施形態では、寸法Pを203mm、寸法Oを201mm、突出量h1を4.5mmとして、隙間H3 ($H3 = H31 + H32 = P - O$) を2mmとしている。なお、この隙間H3は、2~4mmが望ましい。2mm未満では、組付誤差等を吸収し難くなり、4mmを超えては、爪片21b・22bが係止孔33aに十分係止されなくなるからである。

【0037】なお、実施形態では、各爪片21b・22b・23a・24aと各係止孔33a・34aとの配置位置を対応させるとともに、ケース17とドア30とがずれて組み付けられても、各爪片21b・22b・23a・24aの係止時における各係止孔33a・34aの内周面との上下方向・前後方向・左右方向の隙間が、各隙間H11・H12・H21・H22・H32・H32と一致するように、構成されている。すなわち、各爪片21b・22b・23a・24aと各係止孔33a・34aとの配置位置が対応し、 $(B-A) = (D-C)$ 、 $(F-E) = [((K-G) - (J-I)) / 2]$ 、及び、 $(N-M) = (P-O)$ と設定されている。このように構成した場合には、ケース17とドア30との連結時の各部分の余裕が上下方向・前後方向・左右方向で一致することから、エアバッグ11の膨張時等に作用する力を各部分で均等に分散できたり、あるいは、連結時の余裕寸法を目視して容易に把握することができるところである。

【0038】つぎに、実施形態のエアバッグ装置10の車体への組み付けについて説明すると、まず、エアバッグ装置10を組み立てる。エアバッグ装置10の組み立ては、まず、各取付孔11bにボルト12aを挿入させつつエアバッグ11内にリテナ12を入れて、エアバッグ11を折り畳む。

【0039】その後、ケース本体18に対して、上方から、挿通孔21a・22aから両端を突出させるようにインフレーター14を配置させるとともに、ディフューザー25を配置させ、リテナ12の各ボルト12aをディフューザー25とケース本体18の取付孔26d・19cに貫通させ、各ボルト12aにナット13を螺合する。

【0040】ついで、ナット15・16を雄ねじ部14c・14dに螺合させて、ケース17にインフレーター14を固定する。

【0041】そして、側壁33・33をケース本体18の側壁21・22の内側に配置させつつ、側壁34・34をケース17の溝部29・29に嵌め、側壁33・34の各係止孔33a・34aの周縁に爪片21b・22

b・23a・24aを係止させれば、エアバッグ装置10の組み立てが完了することとなる。

【0042】この時、ケース17とドア側壁部32とは、相互の組付寸法に3次元の隙間H1・H2・H3が生ずるよう、余裕が形成されても、ドア側壁部32の短手方向で対向する側壁34・34を溝部29・29に挿入する構造であるため、位置決めが容易であり、簡単にケース17とドア30とを連結することができて、容易にエアバッグ装置10を組み立てることができる。

【0043】また、ケース17とドア30との連結が、ボルトやリベット等を利用するものではなく、係止孔33a・34a周縁に爪片21b・22b・23a・24aを係止させるだけで良いことから、一層、連結作業が容易となる。

【0044】その後、予め、車体に取り付けておいたインパネ1の開口部2から、下方へエアバッグ装置10を入れ、ドア30の各係止脚31dを開口部2の周縁に係止させる。

【0045】ついで、ケース17から延びる各ブラケット20のねじ孔20aに、ブラケット6の取付孔6aを経てボルト7を螺合させれば、エアバッグ装置10をインパネ1の部位に装着することができる。

【0046】なお、上記のエアバッグ10への車体への装着では、予め、インパネ1が車体に取り付けられている場合を説明したが、他の装着方法では、例えば、インパネ1の車体への取り付け前に、開口部2周縁に係止脚31dを係止させて、インパネ1に対してエアバッグ装置10を組み付けておき、ブラケット20を利用してエアバッグ10を連結材5に連結し、ついで、インパネ1を車体に連結固定するようにしても良い。

【0047】そして、実施形態のエアバッグ装置10では、爪片21b・22b・23a・24aを介してドア側壁部32がケース17に連結される構造としていても、溝部29及び側壁21・22と、ドア側壁部32との相互の組付寸法が、爪片21b・22b・23a・24aの係止孔33a・34a周縁への係止状態を確保して、3次元の3方向(上下方向・前後方向・左右方向)に隙間H1・H2・H3を生じさせるように余裕持って、設定されている。

【0048】そのため、ケース17が連結材5を介して車体フレームに連結固定され、ドア30がインパネ開口部2の周縁に係止脚31dを利用して係止されていても、ケース17とドア30との連結誤差が、溝部29及び側壁21・22とドア側壁部32との相互の組付寸法の隙間H1・H2・H3で吸収されることとなる。そして、ドア30は、インパネ開口部2の周縁に蓋本体外周縁31cの係止脚31dを利用して係止されることから、ドア30の蓋本体31におけるインパネ開口部2との合せは良好に確保されることとなる。そしてまた、各

部品の寸法や組付作業の管理を厳格に行なわなくとも、それらの誤差を、溝部29及び側壁21・22とドア側壁部32との相互の組付寸法の隙間H1・H2・H3で吸収できるため、各部品の製造や組付を厳格に行なわなくとも良くなり、各部品の製造や組付の工数・コストを著しく低減させることができる。

【0049】そして、車体への組付後、インフレーター14のガス吐出口14bから所定のガスが吐出されて、エアバッグ11が膨張すれば、ドア30の開き部31aの破断予定部31bが破断し、開き部31aからエアバッグ11が大きく膨張することとなる。なお、破断予定部31bの破断時、ドア30はエアバッグ11に押されて上方へ強く押し上げられるが、各爪片21b・22b・23a・24aが係止孔33a・34aの下縁側を係止して、ドア側壁部32の上方への移動を規制するため、円滑に破断予定部31bが破断することとなる。

【0050】また、エアバッグ11の膨張時、実施形態のエアバッグ装置10では、ドア側壁部32の短手方向で対向する側壁34・34は、ドア側壁部32の長手方向で対向する側壁33・33に比べて、エアバッグ11の膨張時に外方へ膨らむように強く圧力を受けることとなるが、短手方向で対向する側壁34・34の係止孔34aやその係止孔34aに係止される爪片23a・24a、あるいは、その周縁が、溝部29内に収納されるよう、溝部28を構成する内壁部27・28で覆われることとなり、それらの内壁部27・28がエアバッグ11膨張時の強い圧力を面全体で受けて分散させることができて、爪片23a・24aの係止孔34a周縁からの離脱を防止することができる。

【0051】なお、実施形態では、ケース17の長手方向で対向する側壁21・22に爪片21b・22bを設け、対応するドア側壁部32の側壁33・33に係止孔33aを設けたが、この側壁33・33側は、エアバッグ11の膨張時に作用する圧力が、側壁34・34側に比べて小さいことから、爪片21b・22bや係止孔33aを設けなくとも良い。

【0052】また、実施形態では、ドア30の側壁部32を、周囲にわたって連結された四角筒形状のものを示したが、各側壁33・34に分断させた形状として、側壁部32を構成しても良い。

【0053】さらに、実施形態では、溝部29内に設ける爪片23a・24aを外壁部23・24から形成した

ものを示したが、係止孔34aに係止させる爪片を、内壁部27・28から突出させるように形成しても良い。

【0054】さらにまた、実施形態では、ケース17の側壁21・22をドア側壁部32の長手方向で対向する側壁33・33の外側面に配置させる場合を示したが、本体18からの側壁21・22を無くし、ディフューザー25から形成する等して、側壁33の内側面側にケース17の側壁を配置させても良い。そして、その場合にも、側壁33・33の内側面間の寸法と、側壁33の内側面に設けたケース17側の側壁外側面間の寸法と、を、隙間H3を確保できるように設定すれば、本発明の作用・効果を得ることができる。

【図面の簡単な説明】

【図1】本発明の一実施形態のエアバッグ装置の車体への装着状態を示す縦断面図である。

【図2】同実施形態のドア、ケース、インフレーター等の分解斜視図である。

【図3】同実施形態の車体への装着状態を示す縦断面図であり、図1と直交方向のものを示す。

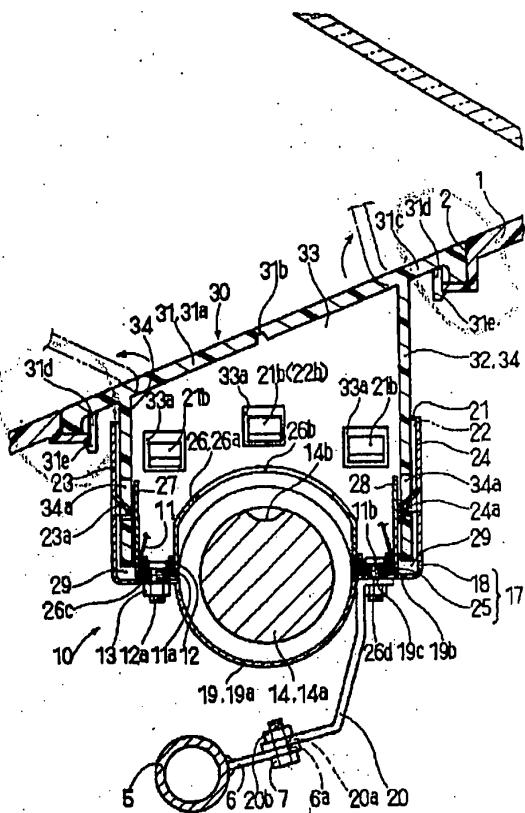
【図4】図1に所定の寸法記号を入れた図である。

【図5】図3に所定の寸法記号を入れた図である。

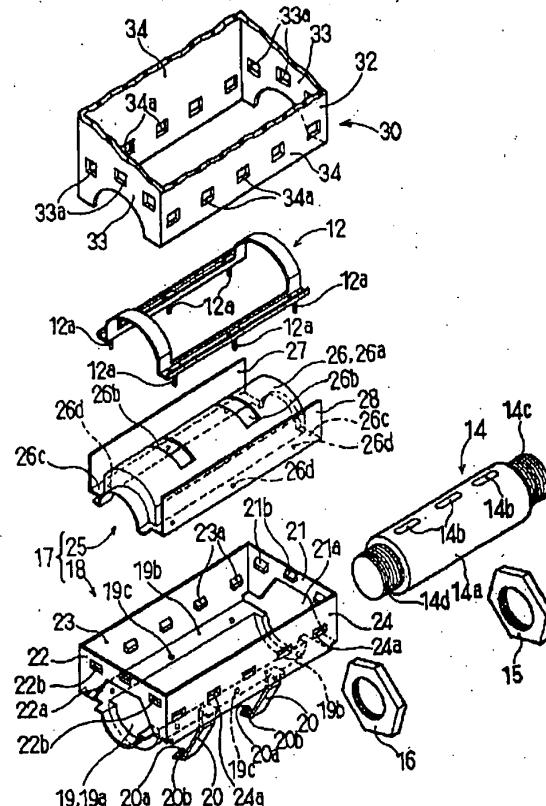
【符号の説明】

- 1…インバネ、
- 2…開口部、
- 5…連結材、
- 10…助手席用エアバッグ装置、
- 11…エアバッグ、
- 14…インフレーター、
- 17…ケース、
- 19b…底壁部、
- 21・22…側壁、
- 21b・22b・23a・24a…爪片、
- 23・24…外壁部、
- 27・28…内壁部、
- 29…溝部、
- 30…ドア、
- 31…蓋本体、
- 31d…係止脚、
- 32…側壁部、
- 33・34…側壁、
- 33a・34a…係止脚、
- H1・H2・H3…隙間。

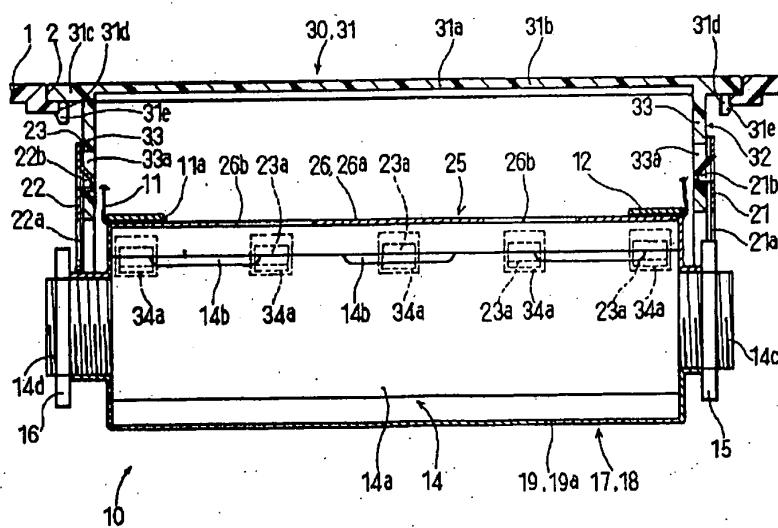
【図1】



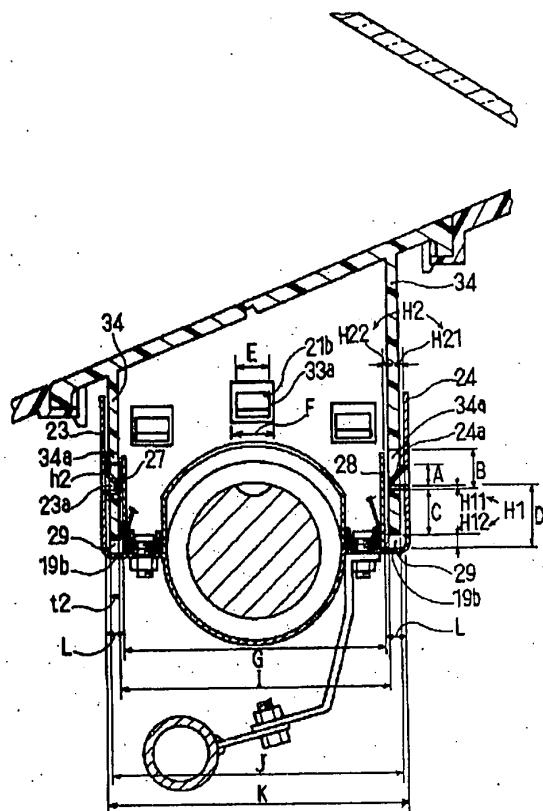
【図2】



【図3】



【図4】



【図5】

